

## REMARKS

Claims 2, 3 and 8 have been amended. Claim 22 has been added. Claims 2-12, 14, 16-17 and 20-22 remain for further consideration. No new matter has been added.

The objections and rejections shall be taken up in the order presented in the Official Action.

1. Claim 8 currently stands objected to for informalities.

Claim 8 has been amended.

1. Claims 2, 3, 5, 7, 8, 10, 11, 16, 17 and 21 currently stand rejected under 35 U.S.C. §103(a) for allegedly being unpatentable over Vo-Dinh's "Development of a DNA biochip: Principle and Applications" (hereinafter "Vo-Dinh") in view of U.S. Patent 6,197,503 to Vo-Dinh (hereinafter "Vo-Dinh '503").

### CLAIM 2

As amended, claim 2 recites a method for immobilizing biomolecules on a surface of a silicon semiconductor that includes a plurality of photodiodes. The method includes:

"applying a layer of a hydrophobic polymer to the surface of the silicon semiconductor, and immobilizing the biomolecules on a surface of the layer of hydrophobic polymer by spotting, wherein the polymer is from a group comprising at least one of a polyimide and a polystyrene, and the polymer layer is applied to the surface of the silicon semiconductor in previously defined regions."  
(emphasis added).

The Official Action contends that Vo-Dinh discloses each feature of the claimed invention except that the integrated circuit is a silicon semiconductor (see Official Action, pg. 4). The Official Action contends that Vo-Dinh '503 discloses silicon semiconductor, and that a skilled

person at the time of the present invention would have modified the method of Vo-Dinh based upon the teachings of Vo-Dinh '503. It is respectfully submitted that the combined references are incapable of rendering obvious the method of claim 1.

As shown in FIG. 1 of Vo-Dinh, reproduced below in the interest of convenience, the sampling platform is held at a distance from the semiconductor by the filter and the GRIN Lens Array System.

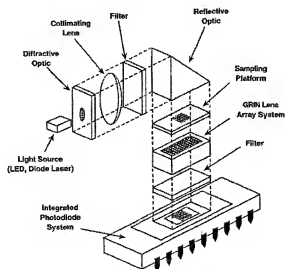


Fig. 1. Diagram of the DNA biochip.

In addition, Vo-Dinh states “[t]he materials of the sampling platform may be a membrane that is subsequently attached to the transducer detection surface.” (pg. 4, left column, lines 24-27).

Thus, Vo-Dinh clearly states that the sampling platform is self supporting, which is clearly indicated in FIG. 1. Vo-Dinh neither discloses nor suggest the claimed features of “*applying a layer of a hydrophobic polymer to the surface of the silicon semiconductor*”, where “*the polymer layer is applied to the surface of the silicon semiconductor in previously defined regions*”. As shown and disclosed in Vo-Dinh, the polystyrene is attached to the sampling platform, not applied a silicon semiconductor, and the sampling platform of Vo-Dinh is separated from the

semiconductor by the filter and the GRIN lens array system as shown in FIG. 1. Therefore, even if the two prior art references were combined, the resultant combination still fails to disclose or suggest the claimed invention. It is respectfully submitted that claim 2 is patentable over the cited combination.

#### CLAIM 8

As amended, claim 8 recites a method for immobilizing biomolecules on a surface of a silicon semiconductor containing a plurality of CMOS photodiodes. The method includes:

“applying a layer of a hydrophobic polymer to the surface of the silicon semiconductor, and immobilizing the biomolecules on a surface of the layer of hydrophobic polymer by spotting, and the hydrophobic polymer layer is applied to the surface of the silicon semiconductor in previously defined regions.”  
(Emphasis added).

As set forth above, in Vo-Dinh the polystyrene is attached to the sampling platform, and not applied to a silicon semiconductor, and the sampling platform of Vo-Dinh is separated from the semiconductor by the filter and the GRIN lens array system as shown in FIG. 1. Therefore, even if the two prior art references were combined, the resultant combination still fails to disclose or suggest the claimed invention. It is respectfully submitted that claim 8 is patentable over the cited combination.

2. Claims 4, 6, 12 and 14 currently stand rejected under 35 U.S.C. §103(a) for allegedly being unpatentable over Vo-Dinh in view of Vo-Dinh ‘503 and in further view of U.S. Published Application 2002/0128234 to Hubbell et al. (hereinafter “Hubbell”).

It is respectfully submitted that this rejection is now moot since claim 8 is patentable for at least the reason set forth above.

3. Claim 9 currently stands rejected under 35 U.S.C. §103(a) for allegedly being unpatentable over Vo-Dinh in view of Vo-Dinh '503 and in further view of U.S. Published Application 2002/0018996 to Kimura et al. (hereinafter "Kimura").

It is respectfully submitted that this rejection is now moot since claim 8 is patentable for at least the reason set forth above.

4. Claim 20 currently stands rejected under 35 U.S.C. §103(a) for allegedly being unpatentable over Vo-Dinh in view of Vo-Dinh '503 and in further view of U.S. Patent 6,325,977 to Theil (hereinafter "Theil").

It is respectfully submitted that this rejection is now moot since claim 8 is patentable for at least the reason set forth above.

For all the foregoing reasons, reconsideration and allowance of claims 2-12, 14, 16-17 and 20-22 is respectfully requested.

If a telephone interview could assist in the prosecution of this application, please call the undersigned attorney.

Respectfully submitted,

A handwritten signature in cursive script, reading "Patrick J. O'Shea". The signature is written in dark ink and is positioned above the printed name and address.

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